	Application No.	Applicant(s)	
Notice of Allowability	10/730,271	FURUKAWA, HIROKI	
	Examiner	Art Unit	
	Leon Flores	2611	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address*--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *5/8/2007*.

2. ☒ The allowed claim(s) is/are *1-21*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some*   c) ☐ None of the:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Allowable Subject Matter

1.   Claims 1-21 are allowed.

2.   The following is an examiner's statement of reasons for allowance: The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with:

3.   Re claim 1, the further limitation of *"a null symbol detection device used for receivers for a digital broadcasting system which repeatedly transmits a null symbol with smaller transmission power than those of other symbols during a fixed period, where at least one of a null symbol repetition period and a null symbol width is different depending on at least one transmission mode, and in which the longer said null symbol repetition period becomes, the wider said null symbol width becomes, said null symbol detection device comprising: an amplitude detector operable for detecting an envelope of at least one of an intermediate frequency signal and a baseband signal; a synchronous addition buffer group having a plurality of synchronous addition buffers for synchronously adding data obtained by sampling an output of said amplitude detector at a fixed sample period during said null symbol repetition period corresponding to said at least one of transmission modes to be received; a transmission mode determination processor operable for performing a moving average operation upon all synchronous addition data rows stored in said at least one of synchronous addition buffers of said synchronous addition buffer group, and for determining a transmission mode by detecting, with respect to a transmission mode to be received, a minimum value of the*

moving average operation and an address of said at least one of synchronous addition

buffers providing the minimum value; and a null position detector operable for detecting,

in accordance with a transmission mode determined in said transmission mode

determination processor, a null symbol position from the address providing the minimum

value of the moving average operation, and for generating a synchronous pulse at a

start point of the null symbol position". Claims 2-19 depends on claim 1 above.

4.   Re claim 20, the further limitation of *"a null symbol detection device used for*

receivers for a digital broadcasting system which repeatedly transmits a null symbol with

smaller transmission power than those of other symbols during a fixed period, which

has at least one transmission mode, where at least one of a null symbol repetition

period and a null symbol width is different depending on at least one transmission

mode, and in which the longer said null symbol repetition period becomes, the wider

said null symbol width becomes, said null symbol detection device comprising: an

amplitude detector operable for detecting an envelope of at least one of an intermediate

frequency signal and a baseband signal; a synchronous addition buffer group having at

least one synchronous addition buffer for synchronously adding data obtained by

sampling an output of said amplitude detector at a fixed sample period during said null

symbol repetition period corresponding to said at least one of transmission modes to be

received; a transmission mode determination processor operable for performing a

moving average operation upon all synchronous addition data rows stored in said at

least one of synchronous addition buffer of said synchronous addition buffer group, and

for determining a transmission mode by detecting, with respect to a transmission mode

to be received, a minimum value of the moving average operation and an address of said at least one synchronous addition buffer providing the minimum value; and a null position detector operable for detecting, in accordance with a transmission mode determined in said transmission mode determination processor, a null symbol position from the address providing the minimum value of the moving average operation, and for generating a synchronous pulse at a start point of the null symbol position, said transmission mode determination processor includes: a moving average processing unit for performing a moving average operation in which, with respect to all of the synchronous addition data rows stored in at least one synchronous addition buffer of said synchronous addition buffer group, an average value of adjacent m sampling values is calculated and the sampling point is successively moved, and for detecting the minimum value of the moving average operation and the address of said at least one synchronous addition buffer providing the minimum value for the transmission mode to be received; a correction processing unit for correcting the minimum value of the moving average operation for each of the transmission modes performed in said moving average processing unit in accordance with a synchronous addition number and a time width of the moving average operation; and a transmission mode determining unit for comparing corrected minimum values of the moving average operation for the respective transmission modes to determine the transmission mode to be received".

5.   Re claim 21, the further limitation of "a null symbol detection device used for

receivers for a digital broadcasting system which repeatedly transmits a null symbol with

smaller transmission power than those of other symbols during a fixed period, which

has at least one transmission mode, where at least one of a null symbol repetition

period and a null symbol width is different depending on at least one transmission

mode, and in which the longer said null symbol repetition period becomes, the wider

said null symbol width becomes, said null symbol detection device comprising: an

amplitude detector operable for detecting an envelope of at least one of an intermediate

frequency signal and a baseband signal; a synchronous addition buffer group having at

least one synchronous addition buffer for synchronously adding data obtained by

sampling an output of said amplitude detector at a fixed sample period during said null

symbol repetition period corresponding to said at least one of transmission modes to be

received; a transmission mode determination processor operable for performing moving

average operation upon all synchronous addition data rows stored in said at least one of

synchronous addition buffer of said synchronous addition buffer group, and for

determining a transmission mode by detecting, with respect to a transmission mode to

be received, a minimum value of the moving average operation and an address of said

at least one synchronous addition buffer providing the minimum value; and a null

position detector operable for detecting, in accordance with a transmission mode

determined in said transmission mode determination processor, a null symbol position

from the address providing the minimum value of the moving average operation, and for

generating a synchronous pulse at a start point of the null symbol position, said

transmission mode determination processor includes: a moving average processing unit for performing a moving average operation in which, with respect to all of the synchronous addition data rows stored in said at least one of synchronous addition buffer of said synchronous addition buffer group, an average value of adjacent m sampling values is calculated and the sampling point is successively moved, and for detecting the minimum value of the moving average operation and the address of said at least one of synchronous addition buffer providing the minimum value for the transmission mode to be received; a threshold calculating unit for calculating thresholds for detecting a transmission mode by said synchronous addition data stored in said synchronous at least one addition buffer; and a transmission mode determining unit for comparing the minimum value of the moving average operation calculated in said moving average processing unit with a threshold calculated in said threshold calculating unit to determine the transmission mode to be received".

6.   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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July 3, 2007

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SUPERVISORY PATENT EXAMINER